

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1, 3-11, 13-18 and 19 are all the claims pending in the application, as new claim 19 is hereby added.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3-11 and 13-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,650,307 B1 (hereinafter, “Toda”) and further in view of U.S. Patent No. 5,745,085 (hereinafter, “Tomio”).

The Examiner asserts that Toda discloses all of the claimed features of the independent claims except the voltage comparison unit and the scaler. However, the Examiner takes Official Notice that the concept and advantages of providing a scaler are well known in the art. The Examiner further contends that Tomio discloses the claimed voltage comparison unit, and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the controlling unit of Toda in order to obtain the claimed invention. Applicant submits the rejection is improper.

As noted above, the Examiner admits that Toda fails to teach or suggest a controlling unit comprising, *inter alia*, a voltage comparison unit. However, the Examiner asserts that the motivation for modifying Toda in view of Tomia would be:

to compare the current and the discharge voltage separately, rather than to compare the power consumption, in view of the Tomio reference, because this would provide a display panel of a lower power consumption type which is not affected by the display rate, as well as to provide a display panel capable of displaying an image while maintaining stable brightness and suppressing

changing in the brightness regardless of a change in the display rate or a change in the setpoint display voltage V_s , as taught by the Tomio reference.”

Applicant respectfully disagrees with the Examiner’s position.

Toda clearly discloses that “power consumption is controlled by both the control of the total number of times discharge for light emission is performed of the display frame and the control of the gain of the input signal.”¹ Further, Toda specifically states:

since the current that flows during the sustaining discharge period influences the amount of current consumption significantly, the current consumption increases when the total number of radiation pulses of a display frame increases. FIG. 4 shows the relation between the display load and the power. If the number of sustaining pulses of each subframe, that is, the total number of radiation pulses n , is fixed, the power consumption P (or current consumption) increases as the display load increases.²

In other words, Toda discloses that the current that flows during the sustaining discharge period is directly related to the power consumption P .

Toda further discloses:

the power control circuit 23 calculates the power consumption based on the detected values of the voltage and current supplied from the power source 5, determines a gain coefficient 2 and the total number of radiation pulses n that will be set to the gain register 35 in the gain control circuit 21, using the gain coefficient

¹ See Toda, Abstract (emphasis added).

² See Toda, col. 3, lines 36-44.

1 and the power consumption, and further determines the number of radiation pulses ... for each subframe SF.

Thus, Toda specifically discloses calculating power consumption based on voltage and current.

Toda goes on state:

When the power consumption P is below the limit value PM, the gain coefficient 2 and the total number of radiation pulses D should be maintained.

When the power consumption P exceeds the limit value PM, the total number of radiation pulses n, which is required to drop the power consumption below the limit value PM, is calculated based on the display load ratio. When the calculated total number of radiation pulses n is larger than the lower limit C, the gain coefficient 2 should be maintained at the initial set value ..., the number of radiation pulses for each SF is set to the total number of radiation pulses n multiplied by the ratio of luminance of each SF, and they are put out to the driver controller 22. As a result, the power consumption P does not exceed and is kept below the limit value PM.³

In other words, the power consumption value P, which is based in part on current, is compared to a limit value PM, and is used to control the gain coefficient and the total number radiation pulses n. The controlling of the gain coefficient and the total number radiation pulses n, in turn, ensures that the power consumption P does not exceed and is kept below the limit value PM. That is, the correct operation of Toda depends specifically on the power consumption, i.e., the voltage and current value from the power source 5. Therefore, the use of

³ See Toda, col. 6, lines 28-38.

the current value from the power source 5 is crucial to the operation of Toda in determining the power consumption P.

Furthermore, FIG. 8 of Toda shows a power control circuit 23, a driver controller 22, which adjusts the gain of the input image signal through the combination of a gain control circuit 21 and a data converter 12. The gain control circuit 21 in Toda is dependent on the output of the power control circuit 23. The driver controller 22 is, in turn, dependent on the power control circuit 23. The power control circuit 23 is thus clearly dependent on both the voltage and the current detection values from the power source 5.

Therefore, contrary to the Examiner's stated position, Applicant submits that one of ordinary skill in the art at the time the invention was made would not have been motivated to modify Toda in view of Tomia, since the comparison of the power consumption is necessary to the proper operation of Toda. Indeed, such a modification would destroy the principle of operation of Toda. Consequently, Applicant submits one of ordinary skill in the art at the time the invention was made would not have been motivated to compare the current and the discharge voltage separately, as the Examiner argues, precisely because the power consumption value P is based on detected voltage and current at the power source, and that such a configuration is necessary for the proper operation of Toda as evidenced by the above-cited portions of Toda. As such, Applicant submits that the teachings of the cited references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810 (CCPA 1959).

Moreover, Applicant submits that Toda teaches away from such a modification, since the proposed modification would render the operability of Toda unsatisfactory for its intended

purpose, i.e., controlling power consumption.⁴ As noted above, Toda specifically requires a circuit which calculates power consumption based on simultaneous detected values of voltage and current supplied from the power source. If one were to separate the detection and comparison of the current and the discharge voltage, as the Examiner argues, it would be impossible to obtain the time-sensitive detection values of voltage and current supplied from the power source which Toda depends on to effectively control power consumption. Consequently, Applicant submits the Examiner's conclusion of obviousness is based on improper hindsight reasoning.

Additionally, Applicant notes that in the present invention, the adjusting of the output gain of the digitized image signal is in response to a variation of the discharge sustain voltage of the power supply unit.

In Toda, by contrast, the gain control circuit 21 changes the gain of the image signal from gain coefficient 1 to gain coefficient 2 depending on the level of power consumption P and the calculated number of radiation pulses n.⁵ Thus, in Toda the gain of the image signal is adjusted depending on detected power values. In other words, the gain of the image signal in Toda is not adjusted in response to a variation of the discharge sustain voltage. Further, Tomia also fails to teach or suggest this unique feature.

Accordingly, Applicant submits that independent claims 1, 11, 17 and 18 are patentable over the applied references for at least the reasons stated above. Further, Applicant submits that

⁴ See Toda, Abstract.

⁵ See Toda FIG. 8 and col. 6, lines 27-42.

dependent claims 3-10, 13-16, and new claim 19 are also patentable over the applied references, at least by virtue of their respective dependency on claims 1 and 11.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: June 4, 2007